

# इंटरनेट

# मानक

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IS 10244 (1992): 2, 4-D Ethyl Ester WP [FAD 1: Pesticides and Pesticides Residue Analysis]



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भारतीय मानक

2, 4-डी इथाइल ईस्टर डब्ल्यू पी — विशिष्ट

*Indian Standard*

2, 4-D ETHYL ESTER WP — SPECIFICATION

*( First Revision )*

UDC 632.954 : 661.725-11/-12

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BUREAU OF INDIAN STANDARDS  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

September 1992

Price Group 2

**AMENDMENT NO. 1 MARCH 2002  
TO  
IS 10244 : 1992 2, 4-D ETHYL ESTER WP —  
SPECIFICATION  
( *First Revision* )**

[ *Page 2, Table 1* ]:

- a) *Sl No.* (ii), *col 2* — Delete the words 'after accelerated storage'.
- b) *Sl No.* (iii), *col 2* — Delete the words 'after accelerated storage'.

( FAD 1 )

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Reprography Unit, BIS, New Delhi, India

## **Pesticides Sectional Committee, FAD 1**

### **FOREWORD**

This Indian Standard ( First Revision ) was adopted by the Bureau of Indian Standards, after the draft finalized by the Pesticides Sectional Committee had been approved by the Food and Agriculture Division Council.

2, 4-D ethyl ester WP is used as a weedicide.

2, 4-D ethyl ester WP is generally manufactured to contain 20 percent ( *m/m* ) 2, 4-D ethyl ester having 18.5 percent ( *m/m* ) of 2, 4-D acid.

In the preparation of this standard, due consideration has been given to the provisions of the *Insecticides Act, 1968* and Rules framed thereunder. However, this standard is subject to the restrictions imposed under these, wherever applicable.

For the purpose of deciding, whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values. ( *revised* )'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

# Indian Standard

## 2, 4-D ETHYL ESTER WP — SPECIFICATION

### ( First Revision )

#### 1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for 2, 4-D ethyl ester WP.

#### 2 REFERENCES

The Indian Standards listed below are necessary adjuncts to this standard:

IS No.	Title
460 ( Part 1 ) : 1985	Test sieves: Part 1 Wire cloth test sieves ( <i>third revision</i> )
1070 : 1992	Reagent grade water Specification ( <i>third revision</i> )
6940 : 1982	Methods of test for pesticides and their formulations ( <i>first revision</i> )
7233 : 1991	2, 4-D ethyl ester, technical ( <i>second revision</i> )
8190 ( Part 2 ) : 1988	Requirement for packing of pesticides: Part 2 Liquid pesticides ( <i>second revision</i> )
10243 : 1992	2, 4-D ethyl ester EC ( <i>first revision</i> )
10627 : 1983	Methods for sampling of pesticidal formulations

#### 3 REQUIREMENTS

##### 3.1 Constituents

3.1.1 The material shall consist of 2, 4-D ethyl ester, technical, together with suitable carrier(s), stabilizer(s) and other formulants(s).

3.1.2 2, 4-D ethyl ester, technical employed in the formulation of this material shall conform to IS 7233 : 1991.

##### 3.2 Description

The material shall be in the form of a homogeneous powder, grey to dark brown in colour and shall wet readily on mixing with water providing a suspension for suitable use as spray.

##### 3.3 Identity Test

When determined by the method prescribed in

Annex A, the retention time of the 2, 4-D ethyl ester extracted from the sample shall be the same as that of reference standard 2, 4-D ethyl ester.

3.4 The material shall also comply with the requirements given in Table 1.

##### 3.4.1 2, 4-D Content

When determined by the method prescribed in Annex A of IS 7233 : 1991, the observed 2, 4-D content percent ( *m/m* ) of any of the samples shall not differ from the declared nominal value by more than the tolerance limits given below:

Nominal Value Percent	Tolerance Limits Percent	
Up to 9	+ 10 ) - 5 )	} of the } nominal } value
Above 9 and below 50	± 5	
50 and above	+ 5 ) - 3 )	

#### 4 PACKING

The material shall be packed according to the requirements given in IS 8190 ( Part 1 ) : 1988.

#### 5 MARKING

The containers shall be securely closed and shall bear legibly and indelibly the following information and any other information as is necessary under the *Insecticides Act*, 1968 and Rules framed thereunder:

- a) Name of the material;
- b) Name of the manufacturer;
- c) Date of manufacture;
- d) Batch number;
- e) Date of expiry;
- f) Net mass of the contents;
- g) 2, 4-D ethyl ester content percent ( *m/m* ); and
- h) A cautionary notice worded as in the *Insecticides Act*, 1968 and Rules.

**Table 1 Requirements for 2, 4-D Ethyl Ester WP**  
( Clause 3.4 )

Sl No.	Characteristic	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	2,4-D content, percent, by mass	Nominal value as declared on the container ( see 3.4.1 and 7.2 )	Annex A of IS 7233 : 1991
ii)	Sieving after accelerated storage ( material passing through 75 micron IS Sieve ), percent by mass, <i>Min</i> ( see Note )	97.0	Cl 11.1 of IS 6940 : 1982
iii)	Suspensibility after accelerated storage, percent by mass, <i>Min</i> ( see Note )	50.0	Cl 11.2 of IS 6940 : 1982
iv)	Free acidity ( as 2, 4-D ), percent by mass, <i>Max</i>	2.0	Annex B of this standard
v)	Wettability in, seconds, <i>Max</i>	120	Cl 11.4 of IS 6940 : 1982

NOTE — The material need not be subjected to accelerated storage treatment if it has crossed half of its shelf-life as ascertained from its date of manufacture and date of expiry declared on the container.

## 6 SAMPLING

When freshly manufactured material is offered for inspection, representative samples shall be drawn and tested as prescribed in IS 10627 : 1983, within 90 days of its manufacturing. When the material is offered for inspection after 90 days of its manufacturing, sampling shall be done as prescribed in IS 10627 : 1983. However, the criteria for conformity of the material when tested, shall be the limits of tolerances, as applicable over the declared nominal value and given under 3.4.1 of this standard.

## 7 TESTS

7.1 Tests shall be carried out by the appropriate methods referred to in 3.3, 3.4, col 4 of Table 1 and 7.2.

7.2 For carrying suspensibility test, weigh a quantity of treated material which could form a 250 ml suspension equivalent to 1 percent of 2, 4-D ethyl ester. Transfer the remaining one-tenth suspension including sediment quantitatively to the reaction flask with minimum quantity of water and determine the active ingredient content as described in Annex A IS 10243 : 1992.

## 7.3 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water ( see IS 1070 : 1992 ) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

## ANNEX A

### ( Clause 3.3 )

#### IDENTITY TEST

#### A-1 PROCEDURE

Weigh accurately 1 g sample in a clean and dry flask, add 25 ml acetone and shake well. Allow the solution to settle for 30 minutes. The

supernatant liquid is filtered through Whatman No. 5 or equivalent filter paper. Collect the filtrate which is to be used for gas chromatography by the method prescribed in Annex G of IS 7233 : 1991.



## ANNEX B

[ Table 1, Item (iv) ]

## DETERMINATION OF FREE ACIDITY

## B-1 GENERAL

Free acidity, which actually represents the free 2, 4-phenoxy acetic acid present in the material is extracted with neutral alcohol and titrated against standard sodium hydroxide solution.

## B-2 REAGENTS

**B-2.1 Ethanol** — Neutral, alternatively methanol, neutral may be used.

**B-2.2 Standard Sodium Hydroxide Solution** — 0.05 N.

**B-2.3 Bromothymol Blue Indicator Solution** — 0.04 percent solution in alcohol ( *m/v* ).

## B-3 PROCEDURE

**B-3.1** Weigh accurately about 10 g of sample into a 500-ml conical flask and add 200 ml ethanol. Mix well and filter the supernatant extract. Take 100 ml filtrate and cool to 4°C if required by keeping the flask on ice-water-bath. Titrate rapidly against standard sodium

hydroxide solution using 1 ml bromothymol blue indicator to the first appearance of green colour.

**B-3.2** Carry out a blank determination with 200 ml ethanol, 5 ml freshly boiled water and 1 ml bromothymol blue indicator.

## B-4 CALCULATION

Free acidity,  
percent by mass =  $\frac{(V_1 - V_2) \times N \times 22.1 \times 2}{M} \times 100$

where

$V_1$  = volume, in ml, of standard sodium hydroxide solution required for the test;

$V_2$  = volume, in ml, of standard sodium hydroxide solution required for blank determination;

$N$  = normality of standard sodium hydroxide solution; and

$M$  = mass, in g of sample.

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